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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,226	11/28/2000	Mark M. Leather	723-964	7825

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EXAMINER	
HARRISON, CHANTE E	
ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/726,226	Applicant(s) LEATHER ET AL.	
	Examiner Chante Harrison	Art Unit 2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *28 November 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *12-19,40,48 and 49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,20-39 and 41-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,6,8&10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 5/14/01 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. Please submit the corresponding PTO-1449.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: multi-tap selectable weight blending filter as claimed in claims 41 and 42.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-11, 20-39 and 41-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Michael Deering et al., U.S. Patent 6,496,187, 12/2002.

As per independent claim 1, Deering discloses rendering and storing a multisampled data representation in the embedded frame buffer (Figs. 14 & 17), resampling (i.e. filtering) the buffer contents to provide an antialiased image (abstract).

As per dependent claim 2, Deering discloses defining a sample pattern for use in rendering the multisampled data representation (Fig. 5A; col. 15, ll. 50-60), using a reconstruction filter during resampling of the buffer (col. 15, ll. 60-67), the reconstruction filter uses multisamples from more than one pixel region to obtain data for a resulting pixel (Fig. 5B; col. 16, ll. 1-27).

As per dependent claim 3, Deering discloses a support area for the reconstruction filter is determined based on the sample pattern (col. 16, ll. 1-27).

As per dependent claim 4, Deering discloses varying a sample pattern for multisamples among adjacent pixels (col. 16, ll. 1-25), and using a reconstruction filter during resampling having a support region that extends beyond a single pixel (Fig. 5B).

As per dependent claim 5, Deering discloses defining a support region for the reconstruction filter based on a particular sample pattern for the multisamples (col. 15, ll. 60-67).

As per independent claim 6, Deering discloses generating a multisampled data representation having plural samples associated with each of the plural pixels (Fig. 5B) and resampling the multisampled data including b lending at least one of the plural samples into plural image pixels (col. 16, ll. 1-10).

As per dependent claim 7, Deering discloses storing the multisampled data in an embedded frame buffer (Fig. 17) and resampling from the embedded frame buffer (abstract).

As per dependent claim 8, Deering discloses a sampling pattern having a non-uniform spatial distribution for the plural samples within neighboring pixels (col. 16, ll. 20-25).

As per dependent claim 9, Deering discloses using a blending filter having a support region that is greater than a single pixel (Fig. 5B).

As per dependent claim 10, Deering discloses using a blending filter having a support region that is greater than a single pixel (Fig. 5B) and defined based on the sampling pattern (col. 15-16, ll. 50-27).

As per dependent claim 11, Deering discloses the support region covering a current pixel and a portion of at least two neighboring pixels to the current pixel (Fig. 5B).

As per independent claim 20, Deering discloses defining super-sample locations for each of a plurality of neighboring pixels (col. 15, ll. 50-60; col. 16, ll. 20-25), assigning color data to each super-sample location (col. 5, ll. 12-16) and blending color data froma at least 2 samples to provide a pixel final color value (Fig. 5B; col. 15, ll. 50-67; col. 9, ll. 10-25; Fig. 3A "84").

As per dependent claim 21, Deering discloses programming variable sample locations (col. 17, ll. 5-20).

As per dependent claim 22, Deering discloses defining three sample locations for each pixel in a 2X2 pixel quad (Fig. 5B).

As per dependent claim 23, Deering discloses programming sample location as x and y distances in units of one twelfth of a pixel (col. 16, ll. 61-65; col. 20). It is inherent that Deering's teaching of sample displacement by random x and y offsets that may be limited to a range of values is inclusive of offsetting sampling locations by units of one twelfth of a pixel.

As per dependent claim 24, Deering discloses using a coverage mask to enable/disable samples (col. 29, ll. 5-12), the mask based on corresponding portion of each pixel that are occupied by a primitive fragment (col. 11, ll. 28-32; col. 29, ll. 5-18), and the mask based on depth comparisons of primitive fragments at sample locations (col. 18, ll. 34-40).

As per dependent claim 25, Deering discloses the coverage mask comprising a masking bit corresponding to each sample location in a quad of pixels (i.e. masking an area sample consisting of more than one point) (Fig. 5B; col. 29, ll. 5-20).

As per dependent claim 26, Deering discloses storing color data within a random access memory embedded in a graphics chip (Fig. 3B; col. 14, ll. 25-30; col. 29, ll. 5-8) and blending color data of multiple samples is performed in an operation of transferring data from embedded RAM to a memory external of the graphics chip (col. 29, ll. 5-20).

As per dependent claim 27, Deering discloses assigning weights to one or more samples and blending the samples based in part on assigned weights (col. 19, ll. 5-15).

As per dependent claims 28 and 31, Deering discloses the weights are assigned via an API program function (col. 19, ll. 8-11).

As per dependent claim 29, Deering discloses 1/64 (col. 30, ll. 10-20; 40-48).

As per dependent claim 30, Deering discloses assigning weights for seven of the samples and blending the seven samples based in part on assigned weights (col. 19, ll. 5-15; Fig. 5B).

As per dependent claim 32, Deering discloses blending seven sample including 3 samples from a current pixel with 2 samples taken from a pixel immediately above the current pixel and 2 samples taken from a pixel immediately below the current pixel (Fig. 5B; col. 15, ll. 50-67).

As per dependent claim 33, Deering fails to disclose each super-sampled pixel is represented in memory by three samples of 16-bit color data and three samples of corresponding 16-bit z position data (Fig. 5B; col. 16, ll. 42-52; col. 18, ll. 25-30).

As per independent claim 34, Deering discloses a coverage mask to enable/disable samples (col. 29, ll. 5-12), the mask based on corresponding portion of each pixel that are occupied by a primitive fragment (col. 11, ll. 28-32; col. 29, ll. 5-18), and a program (col. 7, ll. 10-20) for performing the method of claim 20. Therefore the rationale as applied in the rejection of claim 20 applies herein.

As per dependent claim 35, Deering discloses the blending filter comprises a means for computing a weighted average of samples (col. 28, ll. 52-67).

As per dependent claim 36, Deering discloses the blending filter comprises a means fo computing a weighted average of color data of at least 3 samples corresponding to a current pixel and at least 2 samples corresponding to a pixel immediately above the current pixel and at least 2 samples corresponding to a pixel immediately below the current pixel (Fig. 5B; col. 19, ll. 1-15).

As per dependent claim 37, Deering discloses the blending filter comprises a weighting coefficient means for selectively weighting each sample of color data for computing a weighted average of color data (col. 14, ll. 61-66; col. 28, ll. 32-40, 52-67), and a means for programmably defining a weight coefficient associated with each sample (col. 19, ll. 8-11).

As per independent claim 38, Deering discloses defining three sample locations for each neighboring pixel (Fig. 5B; col. 15, ll. 50-60; col. 16, ll. 20-25), blending 3 samples with 2 samples taken from a pixel immediately above the current pixel and 2 samples taken from a pixel immediately below the current pixel (Fig. 5B; col. 15, ll. 50-67) and displaying a pixel having a color corresponding to the blend (col. 9, ll. 10-25; Fig. 3A "84").

As per dependent claim 39, Deering discloses assigning weights for seven of the samples and computing a weighted averaged based in part on assigned eights (col. 19, ll. 5-15).

As per independent claim 41, Deering discloses a multi-tap selectable weight blending filter characterized by a vertically arranged multiple pixel filter support region wherein one or more color data samples from a plurality of vertically disposed pixels are blended to form a pixel color (Fig. 5B; col. 15-16, ll. 60-14;col.28, ll. 32-67).

As per independent claim 42, Deering discloses a frame buffer containing super-sampled pixel data for a plurality of pixels (col. 9, ll. 42-45), a plurality of scan-line buffers connected to receive super-sampled pixel color data from the frame buffer (col. 22, ll. 63-64; col. 23, ll. 17-20). Claim 42 claims a pixel processing arrangement including the features of claim 41. Therefore the rationale as applied in the rejection of claim 41 applies herein.

As per dependent claim 43, Deering discloses pixel data in the frame buffer including depth information (col. 21, ll. 5-9).

As per dependent claim 44, Deering discloses an embedded frame buffer storing 3 super-sample location within each pixel of an array (Fig. 5B; col. 22, ll. 57-60), each super-sample location having a corresponding color value (col. 21, ll. 5-8), a one

dimensional color data blending filter that blends 3 sample color values with sample color values of adjacent neighboring pixels (Fig. 5A; col. 15-16, ll. 50-30), while information within the embedded frame buffer is being transferred to a destination (col. 28, ll. 1-7, 66-67).

As per dependent claim 45, Deering discloses storing no more than 3 super-sample locations within each pixel (Fig. 5A; col. 16, ll. 14-20).

As per dependent claim 46, Deering discloses the filter blends super-sample color values corresponding to each pixel with super-sample color values corresponding to at least one further neighboring pixel (Fig. 5B; col.15-16, ll. 50-30).

As per dependent claim 47, Deering discloses the filter blends super-sample color values corresponding to 3 vertically aligned pixels to produce a screen pixel output (Fig. 5B).

Conclusion

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Chante Harrison whose telephone number is (703) 305-3937.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ch
March 3, 2003